

PATENT COOPERATION TREATY
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference 115594 ForF4/sko	FOR FURTHER ACTION <small>See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)</small>	
International application No. PCT/NO 03/00359	International filing date (day/month/year) 28.10.2003	Priority date (day/month/year) 31.10.2002
International Patent Classification (IPC) or both national classification and IPC F41H5/04		
Applicant FORSVARETS FORSKNINGSINSTITUTT et al.		

<p>1. This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 2 sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the opinion II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 26.05.2004	Date of completion of this report 31.01.2005
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Bridge, S Telephone No. +49 89 2399-2837



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/NO 03/00359

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-6 as originally filed

Claims, Numbers

1-10 filed with telefax on 26.11.2004

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.: 11-13
- the drawings, sheets:

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5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).
(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

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V Statement concerning novelty, inventive step & industrial applicability

Closest prior art :

D1 = EP-A-0 897 097 (see especially paragraphs 25-30 and 59-61, figure 11) discloses ballistic protection against mines (ie against blast pressure and splinters) particularly for vehicles, which protection consists of at least two substantially plate-shaped protective elements (8,10, 7,3), such that between the two plate-shaped elements are one or more rigid hollow bodies (26) which may be filled with liquid medium (figure 11).

D1 proposes "liquid fuel for drive motors" as liquid medium and thereby implicitly discloses means for filling and removing the liquid from the rigid hollow bodies.

However, D1 does not clearly specify that the rigid hollow bodies should form whole "layers" - the embodiment of figure 11 of D1 only shows a pipe-like arrangement.

D2 = US-B-6 200 664 (see especially column 2 lines 11-65, figure 2) discloses a protection against explosions ("to dissipate the heat and energy of the explosion"), particularly for fixed installations ("room"), which protection consists of at least two substantially plate-shaped protective elements (12, 16), such that between the two plate-shaped elements (12, 16) is one layer of liquid medium ("such as water") stored in one or more rigid containers (14) (figure 2).

In D2, the containers (14) have a single hole (30) for filling the container and "which is closed by a burst disk (32) or other appropriate form of closure such as a removable seal that will be opened in the event of an explosion".

Furthermore, in D2 the plate-shaped elements (12, 16) do not appear to be "protective". "The face sheet 16 is constructed to disintegrate or separate..."; "If an explosion takes place in the room, the resulting blast shock wave disintegrates or removes the face sheet 16, collapses the polyhedral elements 14 and opens the holes 30 therein to force the liquid therein out of the holes in the form of a fine mist that will surround the room and absorb the heat and kinetic energy to effectively dissipate the explosion over-pressure which is the dominant cause of structural damage".

D3 = DE-U-202 20 429 (see especially page 6 line 14 to page 7 line 16, page 9 line 19-40, figure 4,6) discloses a ballistic protection against splinters particularly for fixed installations ("clearing munitions"), which protection consists of at least two substantially plate-shaped elements (9), such that between the two plate-shaped elements (9) are one or more layers of liquid medium stored in one or more flexible containers (8). The one or more of the

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containers (8) are interconnected in groups and that each group of interconnected containers is provided with a device for filling and tapping (figure 6).

However, in D3 the plate-shaped elements (9) are not protective and only serve "as support" and "thin walls made of synthetic material".

Problem : "dynamic" ballistic protection which can be available or not according to the need for protection (page 1 line 27)

"a form of protection that can be employed when the nature of the threat or the situation indicates that it is necessary, which protection can be removed when no longer required" (page 3 lines 7-9).

Solution : According to apparatus claim 1 the ballistic protection consists of at least two (groups of) substantially plate-shaped protective elements, characterised in that between the two (groups of) plate-shaped elements are one or more layers of liquid medium stored in one or more containers where the container(s) are provided with filling means or a connection for filling means and the container(s) are provided with tapping means or a connection for tapping means.

The advantage is that when no protection is needed, the weight can be easily reduced by removing the liquid.

Such a solution is neither disclosed nor suggested in any of the available prior art.

Therefore, the subject matter of the independent claims satisfies the criteria set forth in Articles 33(2)-33(4) PCT.

Note : present claim 1 now includes original claims 7 and 8.

The dependent claims 2-10 concern further technical details of the invention and are carried by the inventive idea of the independent claims. Therefore, the dependent claims also satisfy the criteria set forth in Articles 33(2)-33(4) PCT.

NEW PATENT CLAIMS OF 26.11.04

1. Ballistic protection against projectiles, splinters, sharp objects and the like particularly for personal clothing and equipment as well as for vehicles, vessels, aircraft or fixed installations, which protection consists of at least two substantially plate-shaped protective elements or at least two groups of plate-shaped protective elements,
5 characterised in that between the two plate-shaped elements or the groups of plate-shaped elements are one or more layers of a liquid medium stored in one or more containers where the container(s) are provided with filling means or a connection for filling means and the container(s) are provided with tapping means or a connection for tapping means.

10 2. Protection according to claim 1,
characterised in that the liquid or the liquid-like medium is stored in one or more rigid containers.

15 3. Protection according to claims 1-2,
characterised in that the liquid or the liquid-like medium is stored in one or more flexible containers.

20 4. Protection according to claim 3,
characterised in that a number of the containers completely or partly overlap one another.

25 5. Protection according to claims 1-4,
characterised in that one or more of the containers are interconnected in groups and that each group of interconnected containers is provided with a device for filling and tapping.

30 6. Protection according to claims 1-5,
characterised in that the container(s) for liquid are releasably mounted between the plate-shaped elements, thus enabling it (them) to be replaced.

7. Protection according to claims 1-6,
characterised in that container(s) are provided with a means or connection for means that permit the liquid to be drunk by a person.

8. Protection according to claims 1-7,
characterised in that the plate-shaped elements are kept at a fixed distance apart by distance pieces of suitable dimensions.

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9. Protection according to claims 1-8,
characterised in that the plate-shaped elements are drawn towards each other by
being connected to one or more elastic bodies.

10. Protection according to claim 9,
5 characterised in that the distance between the plate-shaped elements has a lower
limit, distance pieces being mounted with a length between the elements
corresponding to the least desirable distance between the elements.

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